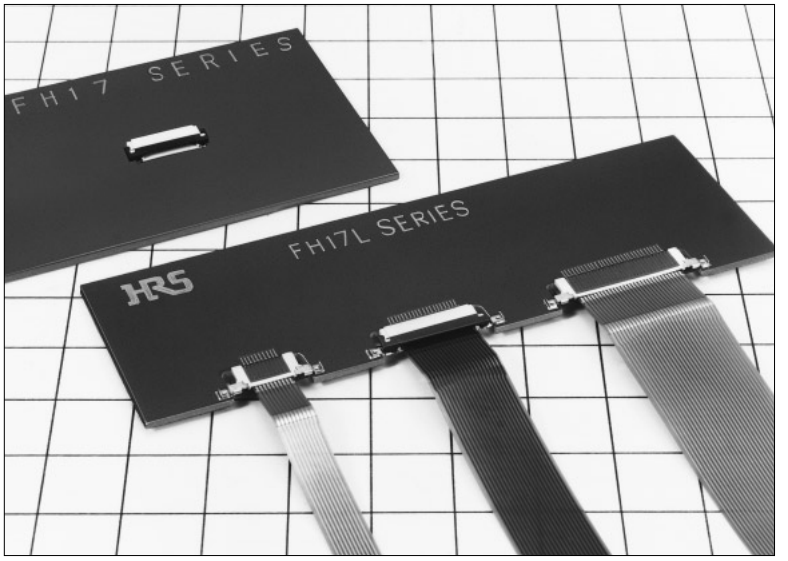
查询FH17-10S-0.5SH供应商

Low Profile 0.5mm Pitch Connectors For FPC

FH17 Series



FH17 (on-board type) flip-lock mechanism

FH17L(board drop-in standard type)flip-lock mechanism

FH17LR (board drop-in reverse type) flip-lock mechanism

■Features

1. Low profile 0.5mm pitch FPC connectors

As products become lighter/thinner/shorter/smaller, requests for thinly-made type FPC connectors are rapidly increasing. The FH17 Series is an ultra miniature version of the Hirose's popular FH12 Series. FH17 has 35%-45% lower profile above the board.

- ✻ FH17 : On-board type, height of 1.3 mm from board surface
- ✻ FH17L : Offset standard type, height of 1.0 mm from board surface
- ✻ FH17LR : Offset reverse type, height of 1.0 mm from board surface

2. Easy to use Flip-Lock Actuator

Flip-lock (rotating type) ZIF mechanism enables good connectivity of FPC by a simple operation and light force. No board space is required for flip lock operation as compared to slide lock ZIF connectors.

3. Variety of Sizes and Options

In addition to the on-board type (FH17), board drop-in types (FH17L and FH17LR) are also available. Selection will depend on the application mounting. Connectors are available with 8 to 30 contacts.

4. Adaptable to thin-type FPC

It conforms to the thin-type FPC (0.17mm) now being used for small size electronic equipment such as cameras, etc.
(Thin-type FPC: Specifications without stiffener of double-faced FPC will reduce the cost of FPC. A single-faced FPC still requires stiffener, but the reduced thickness is easier for manufacturers to produce.

5. Packaged for Pick-and-Place machine

Embossed tape packaging allows automatic mounting.

■Applications

Mobile telephones, devices using LCDs, CD-ROMs, cameras, other miniature devices

■Product Specifications

Ratings	Current rating Voltage rating	0.4A DC 50V AC	Operating temp. range Operatinghumidity range	-40 to +70℃(Note.1) relative humidity 90% max. (No dew-fall)	Storage temp. range Storage Humidity range	-10 to +50℃(Note.2) relative humidity 90% max. (No dew-fall)

(Note:4)

Applicable FPC	t=0.17 $^{+0.03}_{-0.04}$ Tin-lead plating

Item	Specification	Conditions
1.Insulation resistance	500M ohms minimum	100V DC
2.Withstanding voltage	No flashover or insulation breakdown.	150V AC/1 minute
3.Contact resistance	50m ohms maximum	1mA
4.Durability (Insertion/withdrawal)	Contact resistance : 50m ohms maximum No damage, cracks, or parts dislocation.	20 cycles
5.Vibration	No electrical discontinuity of 1μs or more Contact resistance: 50m ohms maximum. No damage, cracks, or parts dislocation.	Frequency: 10 to 55 Hz, single amplitude of 0.75 mm, 2 hours in each of the 3 directions.
6.Shock	No electrical discontinuity of 1μs or more Contact resistance: 50m ohms maximum No damage, cracks, or parts dislocation.	Acceleration of 490 m/s², 11 ms duration, sine half-wave waveform, 3 cycles in each of the 3 axis.
7.Humidity (Steady state)	Contact resistance: 50m ohms maximum Insulation resistance: 50M ohms minimum No damage, cracks, or parts dislocation.	96 hours at temperature of 40℃ and humidity of 90% to 95%
8.Temperature cycle	Contact resistance: 50m ohms maximum Insulation resistance: 50M ohms minimum No damage, cracks, or parts dislocation.	5 cycles under conditions as follows; Temperature: -40℃ → 15 to 35℃ → 85℃ → 15 to 35℃, Time: 30 → 5 max. → 30 → 5 max.(minutes)
9.Resistance to soldering heat	No deformation of components affecting performance.	Reflow: At the recommended temperature profile Manual soldering: 350±5℃ for 3 seconds

Note 1: Includes temperature rise caused by current flow.
Note 2: The term "storage" refers to products stored for long period of time prior to mounting and use. Operating Temperature Range and Humidity range covers nonconducting condition of installed connectors in storage, shipment or during transportation.
Note 3. The above standards represent this series. The individual formal agreement should be based on the Specification.

■Material

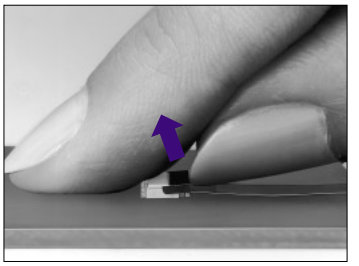
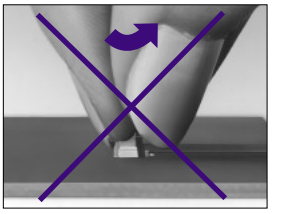
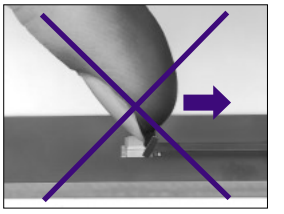
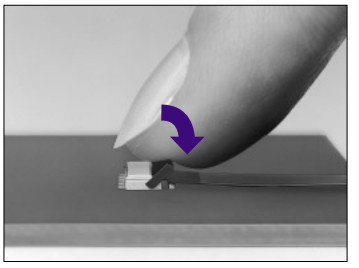
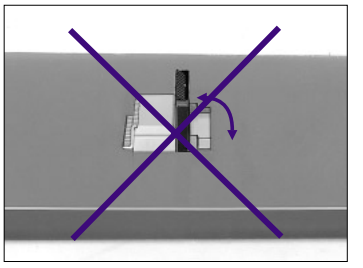
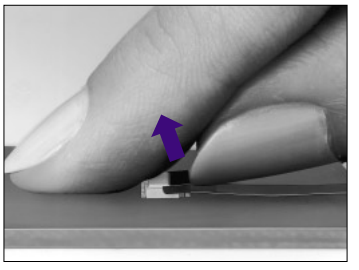
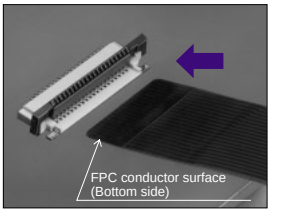
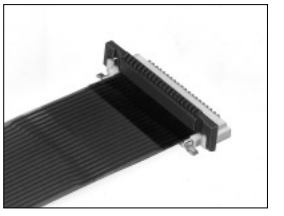
Part	Material	Finish	Remarks
Insulator	LCP	———	UL94V-0
Insulator	PPS	———	
Contact	Phosphor bronze	Tin-lead plating	———
Metal fittings	Brass	Tin-lead plating	———
Insulated tape	Polyamide	———	UL94V-0

■Ordering Information

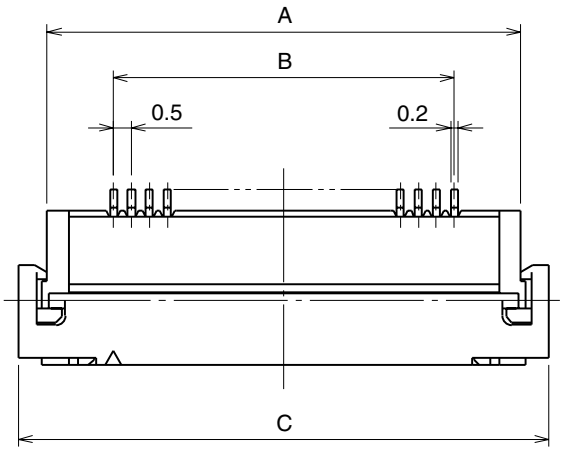
FH17L - 30S - 0.5 SH (05)
❶ ❷ ❸ ❹ ❺ ❻

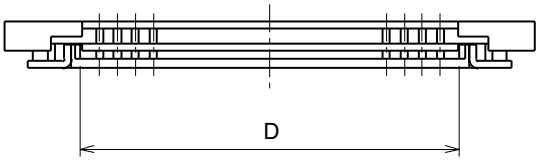
❶	Series Name	FH17
❷	Mounting Type	None : On-Board type L : Offset type LR : Offset reverse type
❸	Number of Contacts	8, 10, 15, 20, 24, 30
❹	Contacts Pitch	0.5mm
❺	Contact Style	SH : SMT horizontal mounting type
❻	Plating specifications	Blank : Tin-lead plating (05) : Gold plating

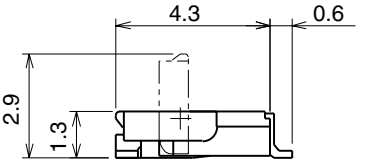
◆Connector Operating Instructions, precautions and recommendations

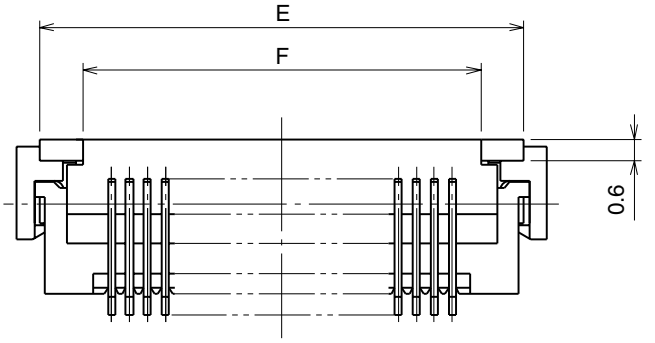
Operation	Precautions
1.FPC Termination procedure. Connector installed on the board. 1) Lift up the actuator. Use thumb or index finger.	1) Do not apply excessive force or use any type of tool to operate the actuator.
	 
2) Rotate down the actuator until firmly closed. It is critical that the inserted FPC is not moved and remains fully inserted. Should the FPC be moved, open the actuator and repeat the process, starting with Step 1 above.	2) The connector will assure reliable performance when the actuator is open to 90° maximum (see fig.1) Do not exceed this angle, as this may cause permanent damage to the connector.
	
2.FPC Removal 1) Lift up the actuator. 2) Carefully remove the FPC.	3) Assure that the FPC is fully inserted parallel to mounting surface, with the exposed conductive traces facing down.
	 

On-Board Type (FH17)









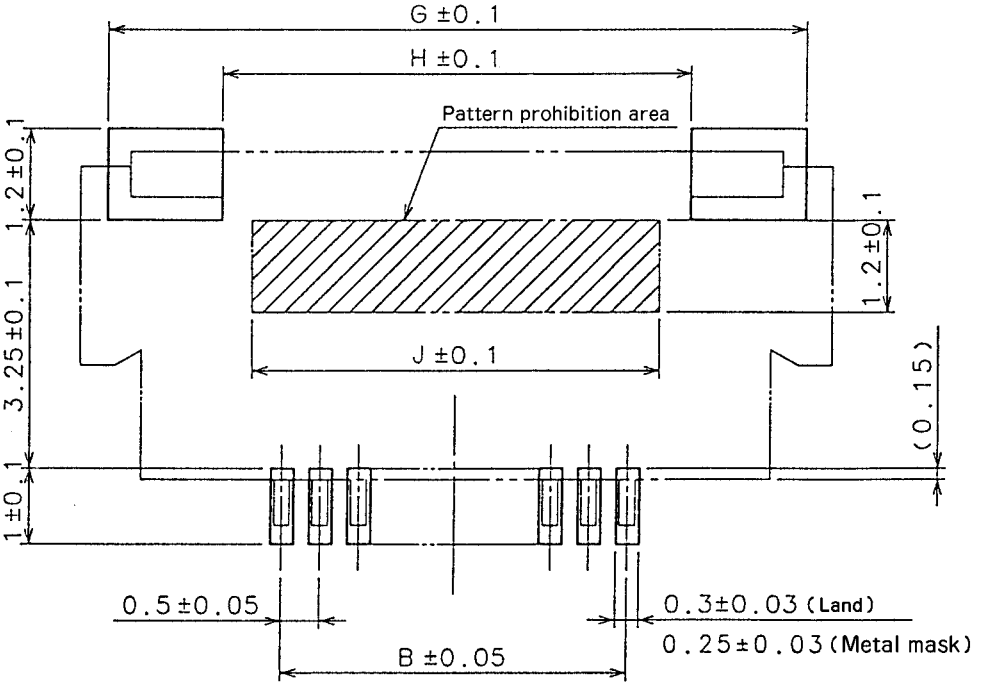
Note 1 The coplanarity of each lead and metal fitting is within 0.1.

(mm)

Part Number	CL No.	Number of Contacts	A	B	C	D	E	F
FH17-10S-0.5SH	586-0638-8	10	8.2	4.5	9.8	5.57	8.5	6.1
FH17-15S-0.5SH	586-0657-2	15	10.7	7.0	12.3	8.07	11.0	8.6
FH17-20S-0.5SH	586-0637-5	20	13.2	9.5	14.8	10.57	13.5	11.1
FH17-24S-0.5SH	586-0645-3	24	15.2	11.5	16.8	12.57	15.5	13.1
FH17-30S-0.5SH	586-0625-6	30	18.2	14.5	19.8	15.57	18.5	16.1

Note:Embossed tape reel packaging(2,000 pieces/reel).
Order by number of reels.

◆Recommended Land/ Metal Mask Dimensions (FH17)



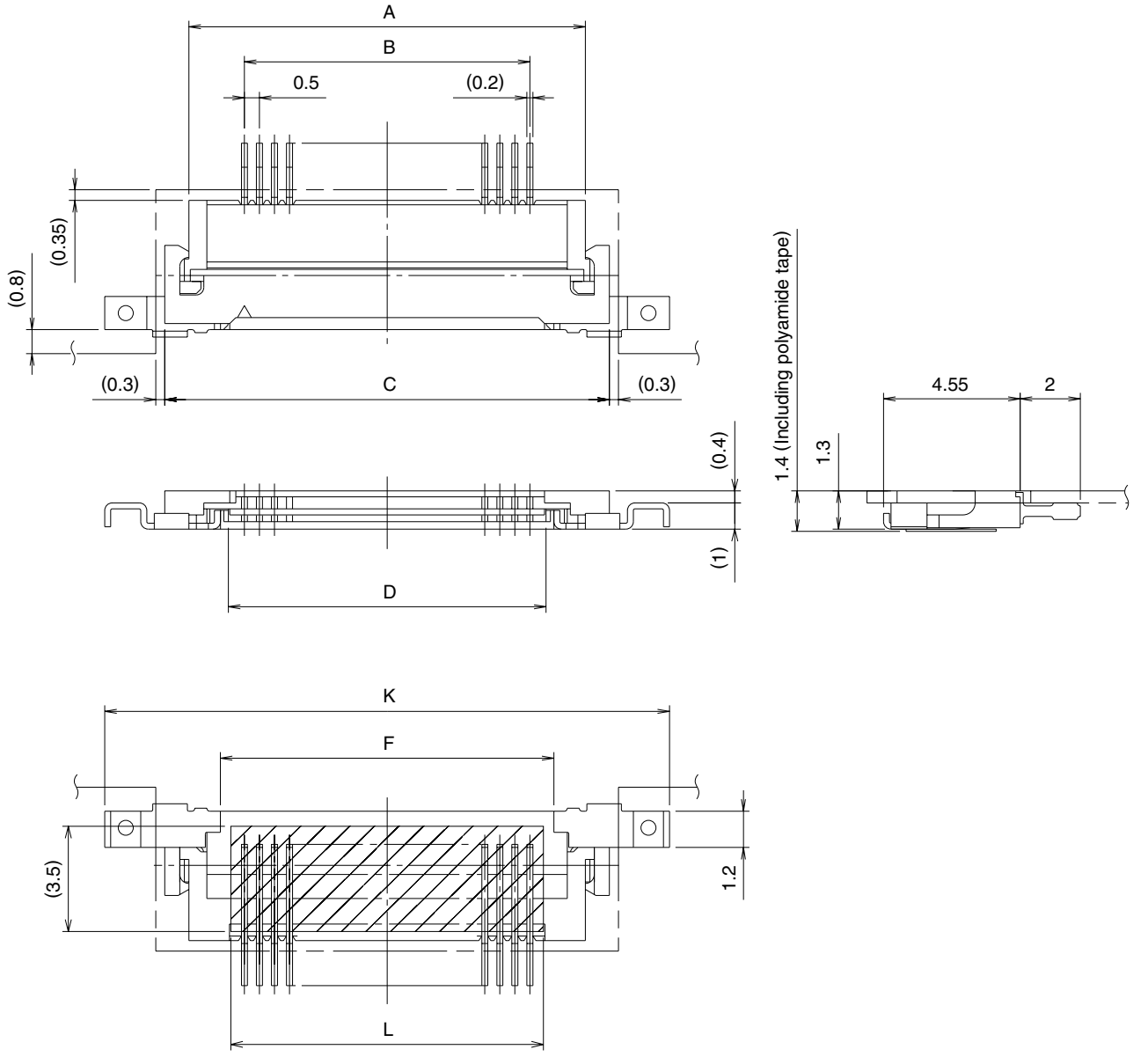
∗Recommended metal mask thickness: t = 0.15

(mm)

Part Number	CL No.	Number of Contacts	B	G	H	J
FH17-10S-0.5SH	586-0638-8	10	4.5	9.1	6.1	5.3
FH17-15S-0.5SH	586-0657-2	15	7.0	11.6	8.6	7.8
FH17-20S-0.5SH	586-0637-5	20	9.5	14.1	11.1	10.3
FH17-24S-0.5SH	586-0645-3	24	11.5	16.1	13.1	12.3
FH17-30S-0.5SH	586-0625-6	30	14.5	19.1	16.1	15.3

Note:Embossed tape reel packaging (2,000 pieces/reel).
Order by number of reels.

Offset Standard Type (FH17L)



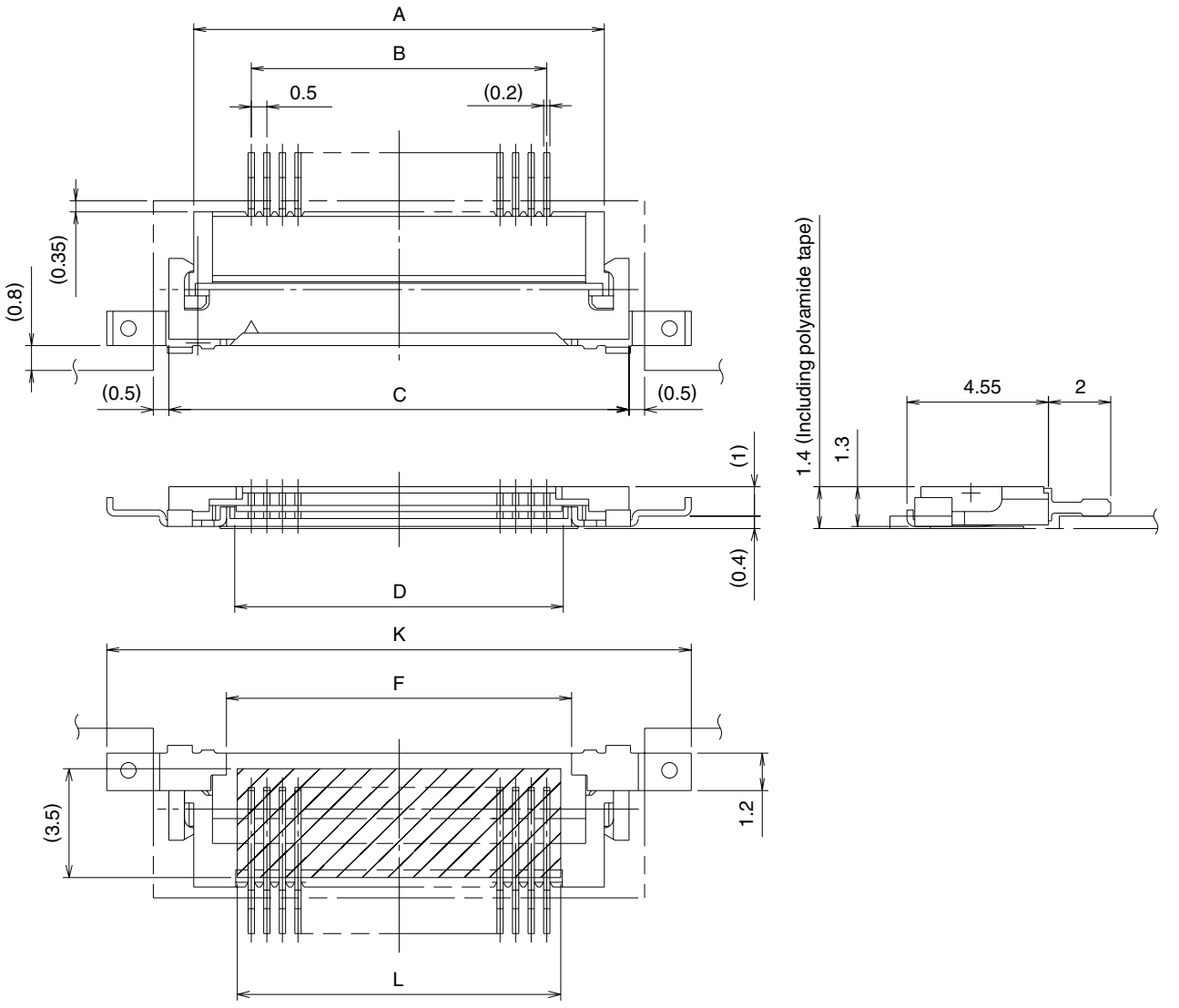
Note: The coplanarity of each lead and metal fitting is within 0.1.

(mm)

Part Number	CL No.	Number of Contacts	A	B	C	D	K	F	L
FH17L- 8S-0.5SH	586-0654-4	8	7.2	3.5	8.8	4.57	12.8	5.1	4.4
FH17L-10S-0.5SH	586-0650-3	10	8.2	4.5	9.8	5.57	13.8	6.1	5.4
FH17L-20S-0.5SH	586-0651-6	20	13.2	9.5	14.8	10.57	18.8	11.1	10.4
FH17L-30S-0.5SH	586-0652-9	30	18.2	14.5	19.8	15.57	23.8	16.1	15.4

Note:Embossed tape reel packaging (2,000 pieces/reel).
Order by number of reels.

Offset Reverse Type (FH17LR)



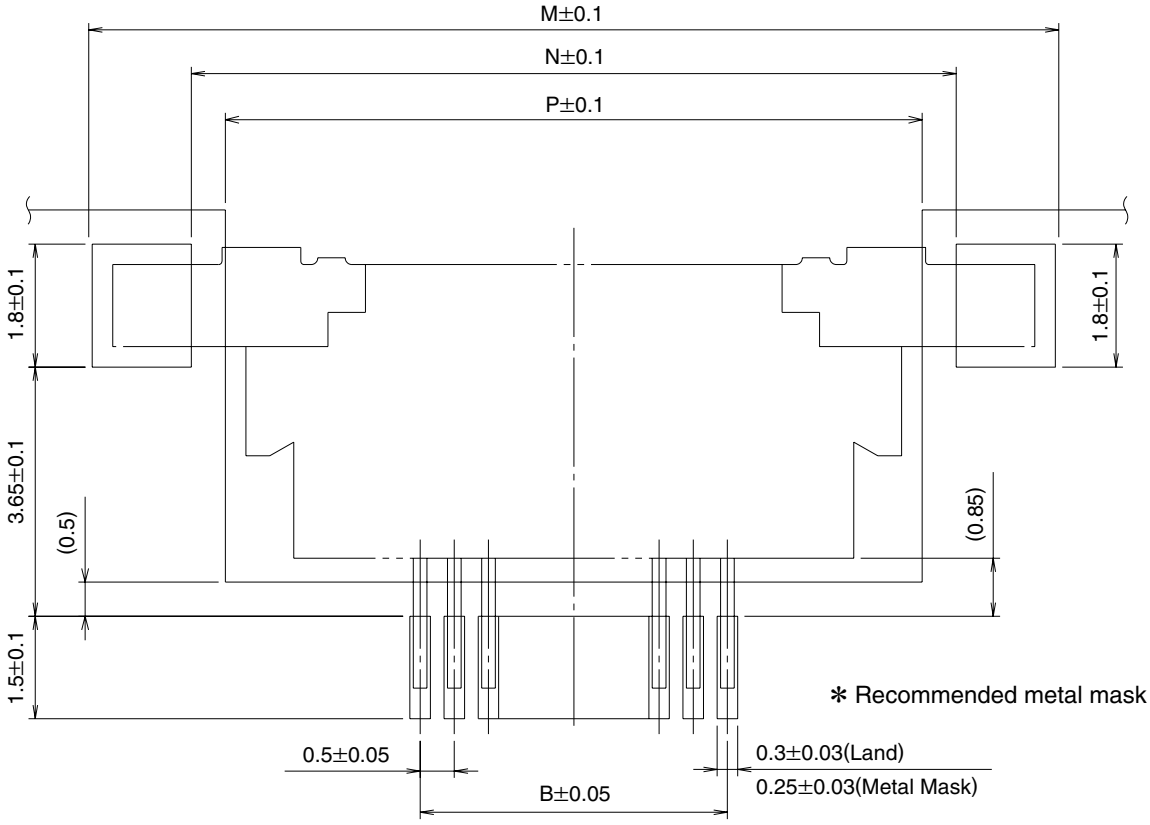
Note: The coplanarity of each lead and metal fitting is within 0.1.

(mm)

Part Number	CL No.	Number of Contacts	A	B	C	D	K	F	L
FH17LR- 8S-0.5SH	586-0666-3	8	7.2	3.5	8.8	4.57	12.8	5.1	4.4
FH17LR-10S-0.5SH	586-0659-8	10	8.2	4.5	9.8	5.57	13.8	6.1	5.4
FH17LR-20S-0.5SH	586-0660-7	20	13.2	9.5	14.8	10.57	18.8	11.1	10.4
FH17LR-24S-0.5SH	586-0683-2	24	15.2	11.5	16.8	12.57	20.8	13.1	12.4
FH17LR-30S-0.5SH	586-0661-0	30	18.2	14.5	19.8	15.57	23.8	16.1	15.4

Note:Embossed tape reel packaging (2,000 pieces/reel).
Order by number of reels.

◆Recommended Land/ Metal Mask Dimensions (FH17L and FH17LR)



∗ Recommended metal mask thickness: t=0.15

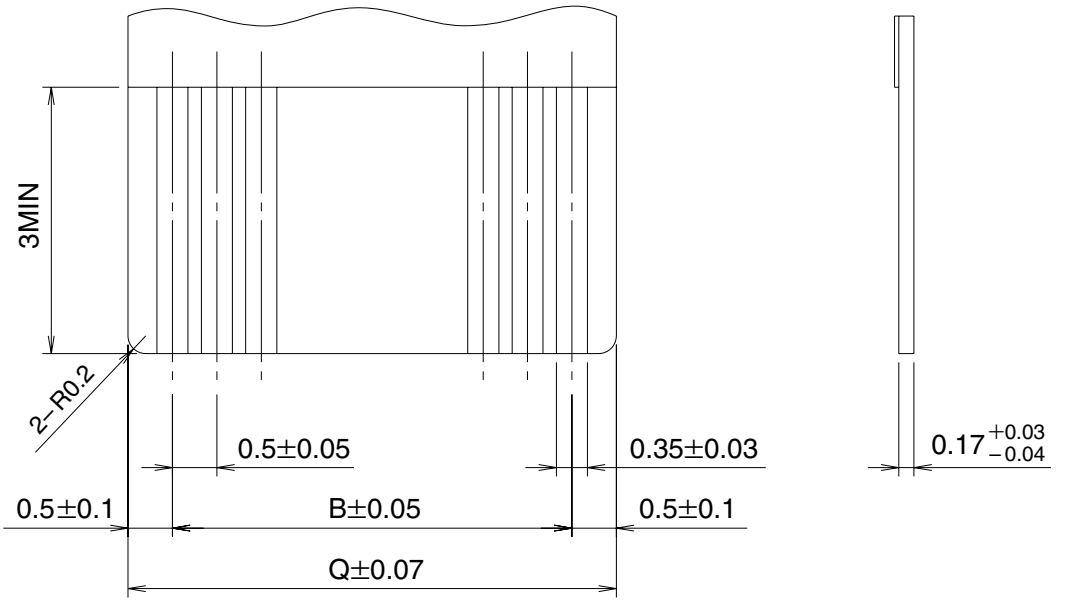
Note: The coplanarity of each lead and metal fitting is within 0.1.

(mm)

Part Number	CL No.	Number of Contacts	B	M	N	P
FH17L- 8S-0.5SH	586-0654-4	8	3.5	13.4	10.4	9.4
FH17L- 10S-0.5SH	586-0650-3	10	4.5	14.4	11.4	10.4
FH17L- 20S-0.5SH	586-0651-6	20	9.5	19.4	16.4	15.4
FH17L- 30S-0.5SH	586-0652-9	30	14.5	24.4	21.4	20.4
FH17LR-8S-0.5SH	586-0666-3	8	3.5	13.4	10.8	9.8
FH17LR-10S-0.5SH	586-0659-8	10	4.5	14.4	11.8	10.8
FH17LR-20S-0.5SH	586-0660-7	20	9.5	19.4	16.8	15.8
FH17LR-24S-0.5SH	586-0683-2	24	11.5	21.4	18.8	17.8
FH17LR-30S-0.5SH	586-0661-0	30	14.5	24.4	21.8	20.8

Note:Embossed tape reel packaging (2,000 pieces/reel).
Order by number of reels.

◆Recommended FPC Dimensions (FH17, FH17L, and FH17LR)



∗ A combination of polyamide and heat-hardened adhesive should be used for the stiffener material in the case of single-sided FPC.

The copper foil of the rear surface should not be used in the case of double-sided FPC.

(mm)

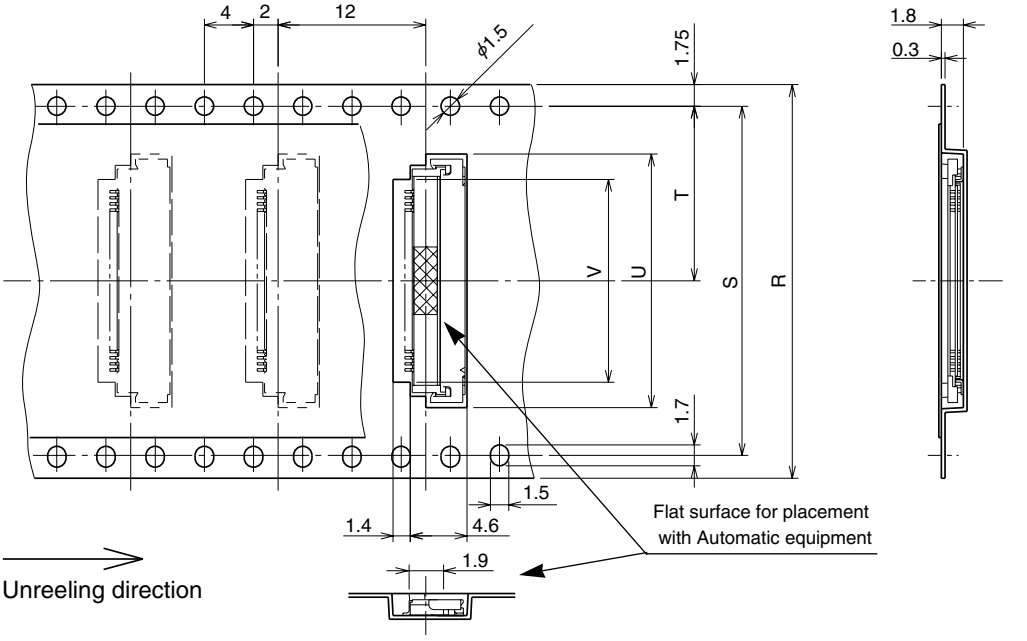
Part Number	CL No.	Number of Contacts	B	Q
FH17- 10S-0.5SH	586-0638-8	10	4.5	5.5
FH17- 15S-0.5SH	586-0657-2	15	7.0	8.0
FH17- 20S-0.5SH	586-0637-5	20	9.5	10.5
FH17- 24S-0.5SH	586-0645-3	24	11.5	12.5
FH17- 30S-0.5SH	586-0625-6	30	14.5	15.5
FH17L- 8S-0.5SH	586-0654-4	8	3.5	4.5
FH17L- 10S-0.5SH	586-0650-3	10	4.5	5.5
FH17L- 20S-0.5SH	586-0651-6	20	9.5	10.5
FH17L- 30S-0.5SH	586-0652-9	30	14.5	15.5
FH17LR- 8S-0.5SH	586-0666-3	8	3.5	4.5
FH17LR-10S-0.5SH	586-0659-8	10	4.5	5.5
FH17LR-20S-0.5SH	586-0660-7	20	9.5	10.5
FH17LR-24S-0.5SH	586-0683-2	24	11.5	12.5
FH17LR-30S-0.5SH	586-0661-0	30	14.5	15.5

Note:Embossed tape reel packaging (2,000 pieces/reel).
Order by number of reels.

◆Packaging Specification

On-Board Type (FH17)

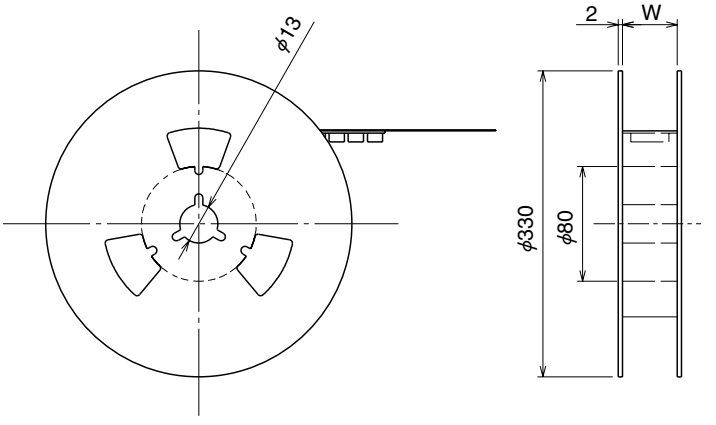
●Embossed Carrier Tape Dimensions

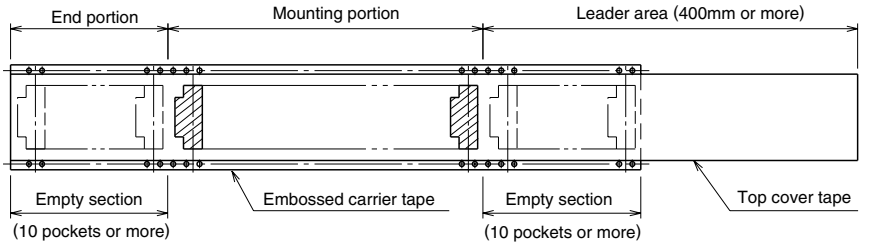


(mm)

Part Number	CL No.	Number of Contacts	R	S	T	U	V	W
FH17-10S-0.5SH	586-0638-8	10	16	——	7.5	10.6	6.5	16.5
FH17-15S-0.5SH	586-0657-2	15	24	——	11.5	13.1	9.0	24.5
FH17-20S-0.5SH	586-0637-5	20	24	——	11.5	15.6	11.5	24.5
FH17-24S-0.5SH	586-0645-3	24	24	——	11.5	17.6	13.5	24.5
FH17-30S-0.5SH	586-0625-6	30	32	28.4	14.2	20.6	16.5	32.5

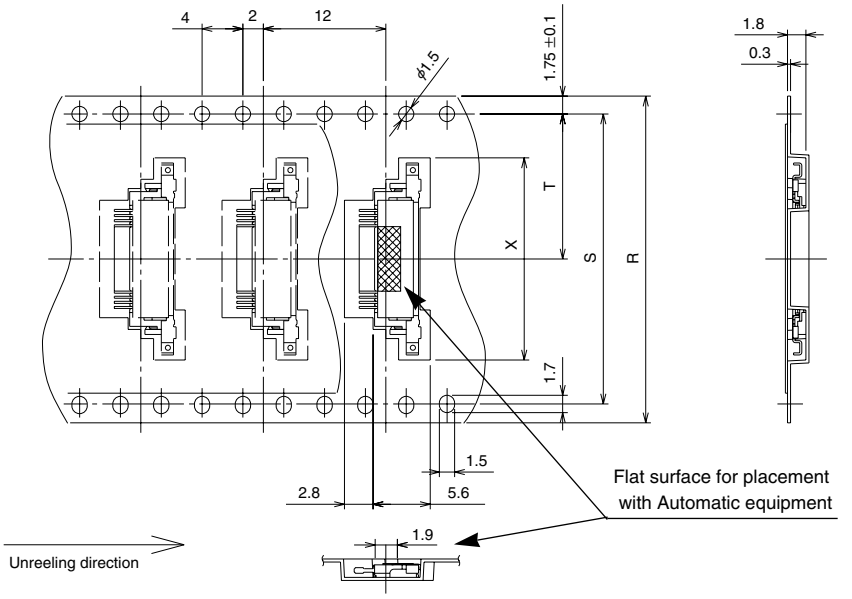
●Reel Dimensions





Offset Type (FH17L and FH17LR)

●Embossed Carrier Tape Dimensions



Standard Type

(mm)

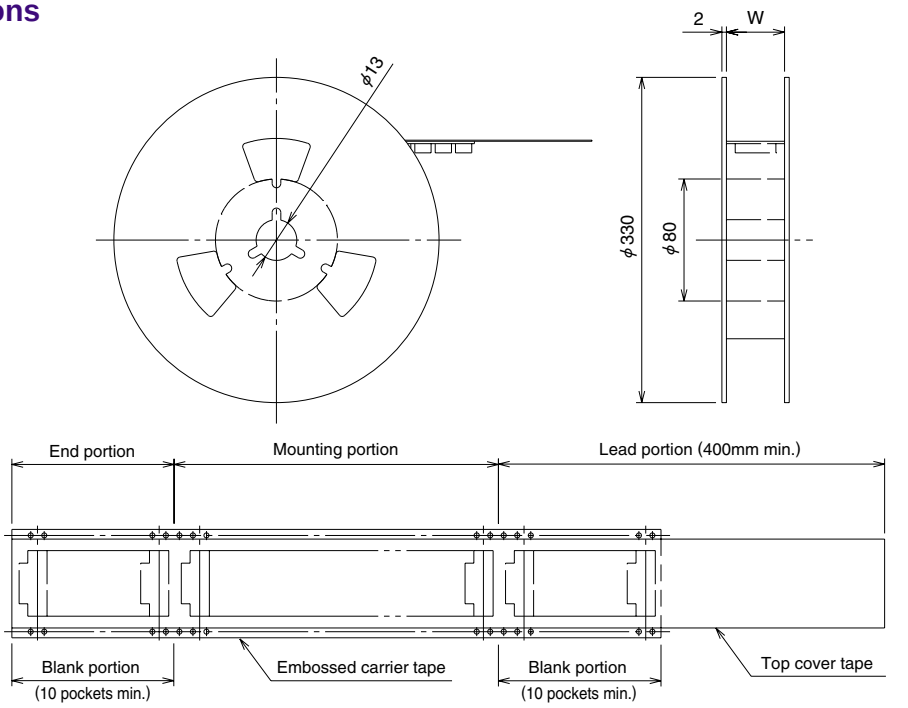
Part Number	CL No.	Number. of Contacts	R	S	T	X	W
FH17L- 8S-0.5SH	586-0654-4	8	24	—	11.5	13.8	24.5
FH17L-10S-0.5SH	586-0650-3	10	24	—	11.5	14.8	24.5
FH17L-20S-0.5SH	586-0651-6	20	32	28.4	14.2	19.8	32.5
FH17L-30S-0.5SH	586-0652-9	30	44	40.4	20.2	24.8	44.5

Reverse Type

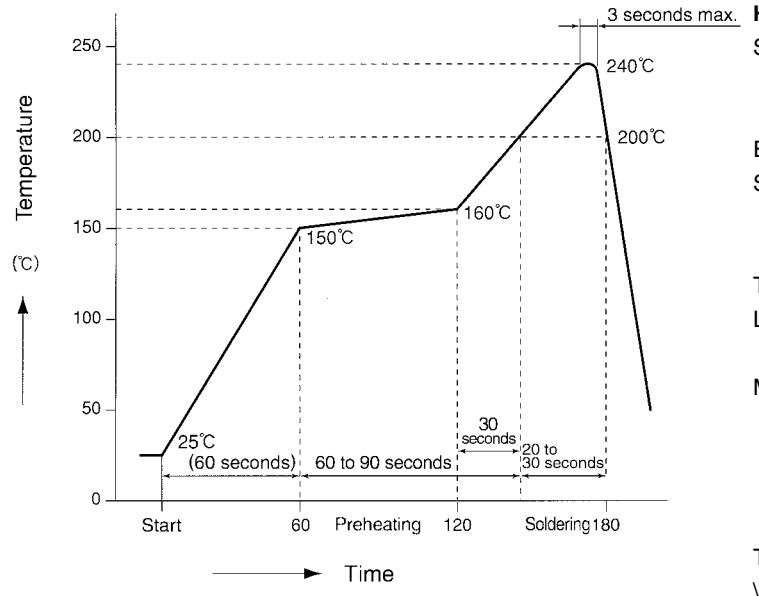
(mm)

Part Number	CL No.	Number. of Contacts	R	S	T	X	W
FH17LR- 8S-0.5SH	586-0666-3	8	24	—	11.5	13.8	24.5
FH17LR-10S-0.5SH	586-0659-8	10	24	—	11.5	14.8	24.5
FH17LR-20S-0.5SH	586-0660-7	20	32	28.4	14.2	19.8	32.5
FH17LR-24S-0.5SH	586-0683-2	24	32	28.4	14.2	21.8	32.5
FH17LR-30S-0.5SH	586-0661-0	30	44	40.4	20.2	24.8	44.5

●Reel Dimensions



◆Recommended Temperature Profile



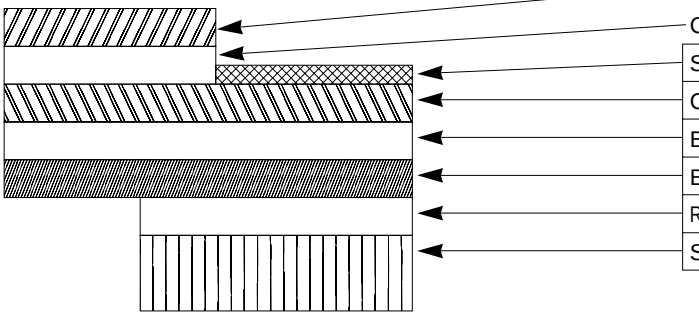
HRS test conditions

Solder method	:Reflow, IR/hot air (Nihon Den-netsu Co., Ltd.'s Part Number: SENSBY NR-Ⅱ)
Environment	:Room air
Solder composition	:Paste, 63%Sn/37%Pb (Senju Metal Industry, Co., Ltd.'sPart Number: OZ63-201C-50-9)
Test board	:Glass epoxy 40mm×80mm×1.6mm thick
Land dimensions	:On-Board type 0.3mm×1.0mm Offset type 0.3mm×1.5mm
Metal mask	:On-Board type 0.25mm×1.0mm×0.15mm thick Offset type 0.25mm×1.5mm×0.15mm thick

This temperature profile is based on the above conditions.
\In individual applications the actual temperature may vary, depending on solder paste type, volume/thickness and board size/thickness. Consult your solder paste and equipment manufacturer for specific recommendations.

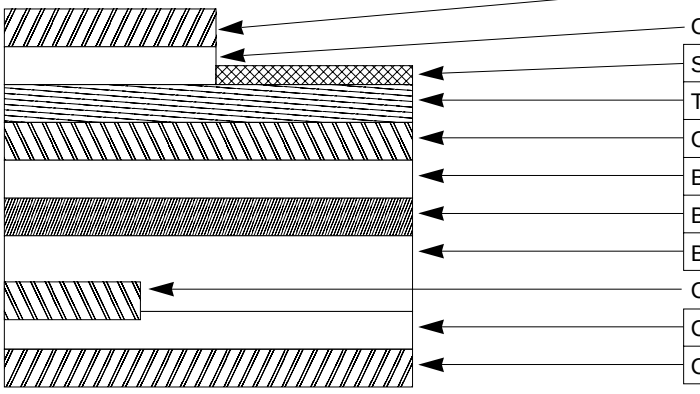
◆FH17 Series FPC Construction (Recommended Specifications)

1. Single-Sided FPC



Material Name	Material	Thickness (μm)
Covering layer film	Polyamide 1 mil	25
Cover adhesive		25
Surface treatment	Tin-lead plating	5
Copper foil	Cu 1oz	35
Base adhesive		18
Base film	Polyamide 1 mil	25
Reinforcement material adhesive	Heat-hardened adhesive	30
Stiffener	Polyamide 2 mil	50
	Total	163

2. Using Double-Sided FPC



Material Name	Material	Thickness (μm)
Covering layer film	Polyamide 1 mil	25
Cover adhesive		25
Surface treatment	Tin-lead plating	5
Through hole copper	Cu	15
Copper foil	Cu 1oz	35
Base adhesive		18
Base film	Polyamide 1 mil	25
Base adhesive		18
Copper foil	Cu 1oz	35
Cover adhesive		33
Covering layer film	Polyamide 1 mil	25
	Total	174

Note: Stiffener is not required for the double-sided FPC.
To prevent release of the lock due to FPC bending, please do not use copper foil on the rear side.

3. Precautions

1. This specification is a recommendation for the construction of the FH17 Series FPC (t=0.17 +0.03/-0.04).
2. The FH17 Series are connectors for thin FPC which is beginning to be used in cameras and other miniature equipment.
   Stiffener is not required for double-sided FPC which will be reflected in FPC cost reduction.
   Please Note that in the case of single-sided FPC, stiffener is required, but the thickness dimension can be created easily.
   For details about the construction, please contact the FPC/FFC manufacturers.

FPC/FFC Manufactures' Contact List

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